

## MEMORANDUM

**DATE:** February 7, 2011  
**TO:** Policy Committee  
**FROM:** W. Scott Whyte, Senior Landscape Planner  
**SUBJECT:** Development Standards – Outdoor Lighting

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### I. Outdoor Lighting

Currently the County regulates outdoor lighting through parking lot and sign lighting as well as some street light regulations in R-5-Multifamily Residential, PUD-Planned Unit Development, and MU-Mixed Use. The majority of requirements for lighting are contained in section 24-57(c) for parking lot design.

There are three requirements for lighting in parking lots:

1. Adequate lighting shall be provided if the uses which are served by the parking lot will be in operation at night.
2. No lighting fixture shall exceed a height of 30 feet. Height of the light fixture shall be the distance from ground or finished grade level to the highest point of a luminary.
3. The lighting in parking lots shall be directed so as not to produce glare on any adjacent property or public right-of-way. Luminaries shall be mounted on light poles horizontally and shall be recessed fixtures with no bulb, lens or globe extending below the casing. The casing shall be opaque and shall completely surround the entire light fixture and light source in such a manner that all light will be directed downward and the light source is not visible from the side. Plans detailing the illumination patterns and specific design of all lighting fixtures shall be submitted for review along with the site plan.

There are two conditions that must be met by an applicant seeking a waiver to allow for the height of the luminaries to be raised to a height in excess of 30 feet up to the height of the main structure on the property or a maximum of 60 feet above grade whichever is less:

- a) The horizontal distance of the luminary from any public right-of-way or adjacent residential or agricultural property shall be at least four times the height of the luminary.
- b) The applicant shall demonstrate to the planning director that no glare will be shed upon adjacent properties and roadways by the placement of higher poles.

The exterior sign section of the zoning ordinance has many requirements for sign lighting that were recently amended. Requirements for R-5, PUD, and MU districts restrict the height of the street lights and require the light fixture to not cast glare to adjacent properties.

During the Comprehensive Plan revision process, staff was asked to review our existing regulations on outdoor lighting and consider adding dark sky principles to other areas of development that are not currently addressed. Dark sky principles have been incorporated into the regulations for parking lot lighting, but not to all other areas of development. Dark sky principles are methods of decreasing the effects of man made light pollution. Light pollution occurs when outdoor lighting is misdirected, misplaced, unshielded, excessive or unnecessary. These conditions cause glare and light trespass, which

in some cases result in a nighttime urban “sky glow” which indicates wasted energy and obscures the stars overhead. By promoting the use of high efficiency fixtures that direct the light only where it is needed, the County can combat the effects of light pollution.

## II. Discussion items

### A. **Dark Sky Principles**

#### 1. Description of issue/problem

- *As development begins to fill within the Primary Service Area and reaches to the rural areas of the County, the potential of losing dark sky qualities increase. Currently the dark sky principles have been applied mainly to parking lots, and per the Comprehensive Plan, staff is considering ways to further encourage these principles and include them in other areas of development such as buildings, walk ways, public areas, roadways and other specialized uses.*

#### 2. History

- *Section 24-57(c) first appeared in the ordinance in 1988, and required that adequate lighting be provided in parking lots where the primary use would be in operation at night. It also restricted the height to no more than 30’. The lights had to be positioned so as not to cause objectionable glare on adjacent properties.*
- *Amendments were made in 1991 that restricted the height to 20’ without a waiver, required that no fixture was to be mounted at a greater angle than 15 degrees from horizontal. It also required a lighting plan that showed illumination patterns and fixtures proposed. A waiver application process was established to increase the height of the lights poles with the Planning Director’s approval, and a criterion was established for the waiver.*
- *The latest amendments were made in 1999 and changed the height limit to 30’ with waiver criteria to increase the height. Recessed fixtures and opaque casing mounted horizontally were added and are now required.*

#### 3. Comprehensive Plan GSAs, public input, and PC and BOS direction

- *CC 3.10 - Encourage on-site lighting that enables the retention of the rural “dark sky” qualities of the County by promoting the use of cut-off and glare reducing fixtures and low intensity lighting. Adopt guidelines that identify recommended lighting designs that address a wide range of lighting applications.*
- *PF 1.4.1 addresses the need to use high efficiency lights in our public facilities.*
- *H 1.3 – Require the provision of adequate street lighting, safe and convenient pedestrian circulation, and appropriate interconnections between residential developments.*
- *The sustainability audit recommends the following actions:*
  - *The lighting regulations in sec. 24-57(c) should establish maximum footcandle limits on the site and at residential property lines. Lighting intensity limits should be set at a maximum of 10 footcandles on the site and a maximum of 0.1 footcandle at a residential property line. Any site plan application for new or revised lighting should be required to include a photometric plan illustrating the proposed layout and footcandles of site lighting.*
  - *Metal halide or LED lighting is preferred over low pressure sodium.*
  - *The lighting regulations of sec. 24-57(c) should provide both maximum and minimum lighting requirements to ensure that commercial sites are adequately lit for security purposes, but in a manner that minimizes light pollution.*

4. Solutions and policy options

- Several dark sky organizations exist that provide many sample lighting ordinances and lighting guidelines that promote the dark sky principles.
- Fairfax County has one of the most comprehensive outdoor lighting ordinances in the State and several other localities have used it as a model. All outdoor lighting requirements can be found in one section of the ordinance. The ordinance covers general performance standards for lighting, standards for certain commercial uses, and outdoor recreation and sport facility lighting. They have required full cut off fixtures for canopies, buildings, walls, walk ways and parking lots. They have also applied dark sky principles to lighting requirements for signs, directional lighting, HOA owned open space, construction sites, commercial uses, and athletic uses. A very extensive guide to their outdoor lighting standards has been created and developers can use it while preparing their lighting plans.
- The Community Appearance Guide could be expanded to cover a broader range of lighting suggestions or a separate guide could be created just for outdoor lighting. The suggestions would promote dark sky principles to reduce light pollution and promote energy efficiency.
- Added expense to developer through more expensive fixtures should be offset by energy savings that the fixtures can provide, and in many cases the fixtures that provide the directional features desired are not any more expensive.

5. Staff recommendations

- Staff recommends adding more language to the ordinance that requires the use of energy efficient fixtures that shine downward and don't cast glare, in areas other than just parking lots. They could be required for buildings, walk ways, canopies, and other public areas.
- Staff recommends expanding the Community Appearance Guide to include more suggestions on outdoor lighting techniques that promote dark sky principles or creating a separate guide for all outdoor lighting applications. The Community Appearance Guide should be expanded if only a small amount of the suggestions are proposed and a new guide should be created if it is decided to include a large amount of suggestions as Fairfax County has done. These could be used for a trial period so staff can evaluate how well the guidelines are received and applied on a voluntary basis. If needed, ordinance requirements could be added at a later time.

**B. Comprehensive Outdoor Lighting Section**

1. Description of issue/problem

Current lighting regulations are mostly contained in section 24-57 for parking lot design. More regulations that restrict height and glare on adjacent properties applicable to streets and public areas are contained in the PUD, MU, R-5, and A-1 districts, and those applicable to signage are found in the exterior sign section. This requires applicants to search through many areas of the zoning ordinance to find lighting regulations.

2. History

- See A above.

3. Comprehensive Plan GSAs, public input, and Pc and BOS direction

- See A above.

4. Solutions and policy options

*One way to address this problem is to create a separate section just for outdoor lighting that would address all outdoor lighting regulations in one place. Many other localities in the State have done this, with Fairfax County's being the most comprehensive. A new outdoor lighting section could address all kinds of outdoor lighting situations that would not be practical to list in separate districts. The new section of the ordinance could address areas such as buildings, pedestrian accesses, and specialized uses such as various athletic fields and apply performance standards to reduce light pollution and promote energy.*

5. *Staff recommendations*

*Staff recommends locating all lighting regulations into one outdoor lighting section and modeling the ordinance's format to Fairfax County's, while addressing any concerns that may be unique to James City County.*

**III. Conclusion**

Staff recommends adding more language to the ordinance that requires the use of energy efficient fixtures that shine downward and don't cast glare, in areas other than just parking lots. Staff also recommends that the Policy Committee support consolidating requirements pertaining to lighting in a comprehensive outdoor lighting section in the zoning ordinance. Even if no new regulations are added, having the entire outdoor lighting requirement in one area of the zoning ordinance would result in an easier-to-read ordinance. Staff also recommends that the Policy Committee support creating a guide for outdoor lighting that can give developers suggestions on how to apply outdoor lighting in the County and to use the guide over a trial period to assess how well the guidelines are received and applied.